

## TCT-314

## Outcome and reproducibility of Heart Team decisions: a single center experience

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**Background:** A multidisciplinary team (MDT) approach is now a class IC recommendation in the European and American guidelines for decision-making in patients with complex coronary artery disease (CAD). The Heart Team (HT) consists of at least one interventional cardiologist, a cardiac surgeon and a non-invasive cardiologist. The aim of this study was to evaluate the implementation and consistency of HT decisions in a tertiary cardiac centre.

**Methods:** We prospectively evaluated our data derived from 51 MDT meetings held between April 2012 and April 2013. A subset of cases was randomly selected and re-presented with the same clinical data, at least 6 months after the initial decision in order to evaluate the consistency of initial decisions.

**Results:** Amongst patients discussed (n=399) 23% were females. An average of 8 patients were discussed in each weekly meeting. This was attended by a median number of 1 non-interventional cardiologist, 3 interventional cardiologists and 3 cardiac surgeons. The most common HT decisions included continued medical management (30%), coronary artery bypass grafting (CABG) (26%) and percutaneous coronary intervention (PCI) (17%). Other decisions, such as further assessment of symptoms or evaluation with dobutamine stress echo, cardiac MRI, repeat coronary angiogram, pressure wire studies (PWS), intravascular ultrasound (IVUS) or exercise treadmill test (ETT) were made in 27% of the cases discussed. HT decisions were implemented in 93% of the cases. The most common reasons for non-implementation were unrecognised comorbidities (n=11), change of symptoms (n=7), patient refusal (n=7) and death (n=4). On re-discussion of the same data (n=25) within a median period of 9 months 20% of decisions (n=5) differed from the original HT recommendation.

**Conclusions:** The Heart Team is a robust process in the management of patient with complex CAD and decisions are largely reproducible. Although outcomes are successfully implemented in the majority of the cases, it is important that all clinical information is available during discussion and patients' preference is taken into account.

## TCT-315

## Increasing Utilization of Percutaneous Coronary Interventions from 1988 to 2006 in Patients with type 2 Diabetes Mellitus in the United State

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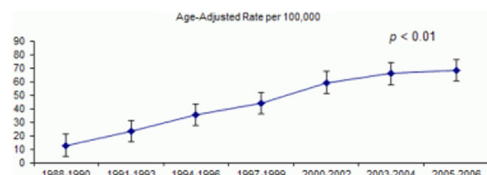
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**Background:** Percutaneous coronary interventions have increased in recent years in high risk patients. The goal of this study was to evaluate this trend in type 2 diabetes (DM) patients undergoing PCI in the United States.

**Methods:** The Nationwide Inpatient Sample (NIS) database was utilized to calculate the age-adjusted incident rate of PCI performed in type 2 DM patient from 1988 to 2006 in the United State using ICD-9 coding for PCI and type 2 DM.

**Results:** A total population of 504371 type 2 DM patients underwent PCI between 1988-2006 were available for our study over the age of 40. We found that age adjusted rate of PCI performed in type 2 DM patient gradually increased with highest rate in 2006. Age adjusted rate for DM patients undergoing PCI was 10.1 per 100,000 in 1988 vs. 70.1 per 100,000 in 2006 (p<0.01). Non-DM patient had similar increase in PCI over the years studied.

**Conclusions:** PCI performed increasingly in type 2 DM patients in last few decades. The cause of this trend is not known but is most likely related to PCI being performed more frequently in high risk patient or related to increasing incidence of PCI in the population.



## TCT-316

## Abstract Withdrawn

## TCT-317

## Impact of Glycemic Control on Cardiovascular Outcomes in Secondary Prevention of Diabetic Patients after a First Coronary Event. Insights from an international registry including 1,036 patients.

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**Background:** The effect of glycemic control on major cardiovascular (CV) and cerebrovascular events (MACCE) after percutaneous coronary intervention in patients with Type 2 diabetes (DM) remains controversial.

**Methods:** We report an international, observational study on DM patients with coronary artery disease eligible for percutaneous coronary intervention. Patients with Type 1 diabetes and ST elevation myocardial infarction (MI) were not included. Clinical follow up and glycemic control as assessed by glycosylated hemoglobin (HbA1c) were obtained at 1 year.

**Results:** A total of 1,036 patients aged 61.9 (+/-0.3) years were included. CV risk factors included smoking, hypercholesterolemia, hypertension and overweight in 49.7%, 78.2%, 76.6% and 47.6%, respectively. Clinical presentation included acute coronary syndrome, silent ischemia and stable angina in 22%, 15.6% and 30.8%, respectively. 1,687 coronary stenosis were treated with at least one Xience everolimus eluting stent (EES) in the left main (n=52), the left anterior descending artery (n=744), the left circumflex artery (n=506) or the right coronary artery (n=538). The mean length and diameter of the implanted EES were 19.0+/-0.2mm and 2.88+/-0.01mm, respectively. MACCE was observed in 95 (9.2%) patients: CV death (n=16 (1.5%)), myocardial infarction (n=8 (0.8%)), ischemia driven revascularization (66 (6.4%)) and ischemic stroke (n=5 (0.5%)). The MACCE rate was not significantly different among the low, intermediate and high tertile groups of HbA1c.

**Conclusions:** The use of EES in a large population of DM2 patients is associated with a low MACCE rate at 1 year. No beneficial effect of good glycemic control as assessed by HbA1c on MACCE was observed in this "all-comer" diabetic population at 1 year.

## TCT-318

## Cardioprotection with Glucagon-like Peptide-1 (GLP-1) may occur independent of coronary collaterals and metabolic substrate utilisation

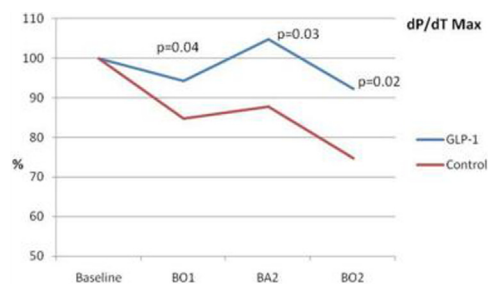
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**Background:** Mechanisms for cardioprotection with Glucagon-like Peptide-1 (GLP-1) are unclear. Human studies have mainly assessed the effects of GLP-1 when administered after an ischemic insult, when reperfusion injury pathways have been activated. There is however, limited data investigating the impact of GLP-1 on supply ischemia when given before PCI.

**Methods:** 30 patients with normal LV function were studied during elective LAD PCI. Pressure-volume loops were recorded using a LV conductance catheter at baseline, during 1-min low-pressure balloon occlusion (BO1), after 30mins recovery, and during a 2nd 1-min balloon occlusion (BO2). Patients were randomized to receive either IV saline (control) or GLP-1 (7-36; 1.2 pmol/kg/min) given before BO1. Coronary wedge pressure (Pw) & simultaneous coronary artery/sinus glucose samples were measured during BO1. Data were analyzed offline by a blinded reviewer for measures of systolic (dP/dTmax) & diastolic (dP/dTmin) function.

**Results:** Compared with controls, pre-treatment with GLP-1 reduced LV dysfunction during BO1 ( $\Delta$  dP/dTmax -5.7% vs -15.3%, p=0.04;  $\Delta$  dP/dTmin -10.4% vs -21.8%, p=0.04), improved recovery at 30mins ( $\Delta$  dP/dTmax +4.8% vs -12.2%, p=0.03) & reduced LV dysfunction after BO2 ( $\Delta$  dP/dTmax -7.7% vs -25.3%, p=0.02;  $\Delta$  dP/dTmin -15.3% vs -30.3%, p=0.05). Collateral recruitment (Pw 24.4 vs 20.3mmHg, p=0.36; pressure-derived collateral flow index 0.19 vs 0.17, p=0.57) & glucose utilisation was similar in both groups.



**Conclusions:** Pre-treatment with GLP-1 protects against supply ischemic LV dysfunction & stunning, independent of coronary collaterals and metabolic substrate.

#### TCT-319

##### Pathological findings of basophilic foreign materials in 10 coronary artery and 3 intracerebral Pipeline cases

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**Background:** Today percutaneous intervention is the preferred treatment for atherosclerotic disease in any part of the body, therefore there is a greater potential for embolization of material used on such devices. Several reports have shown that foreign materials such as the hydrophilic polymer can induce obstruction of small vessels with distal necrosis as well as granulomatous hypersensitivity reaction (Modern Pathology 2010; 23:921-30).

**Methods:** We reviewed autopsy registry files from 2005 to 2013 and identified 13 cases of foreign body hydrophilic polymer that was associated with untoward effects.

**Results:** There were 10 coronary (total stents = 29) and 3 intracerebral interventions that at autopsy had foreign materials identified around the stent strut or in the distal bed. Overlapping stent were used in 6 cases (60%) and mean stented lesion length was 27±18mm in the coronary artery cases. All showed the presence of foreign body basophilic materials in the intramural small coronary artery with or without chronic inflammation, fibrin and giant cells. Foreign body basophilic materials were observed around stent struts in 3 cases. Basophilic materials were identified in the left ventricle in 6 cases (60%), right ventricle in 3 cases (30%) and in both ventricle in 1 case (10%). Most of the basophilic materials were seen in the epicardial one third of the ventricle with or without myocyte necrosis. The 3 intracerebral cases involved the internal carotid artery in 2 and the basilar artery in 1, all had Pipeline stent implantation and in 2 cases embolic material was identified in the area of the intracerebral hemorrhage and/or in surrounding brain sections with or without inflammation. All 3 Pipeline stents in the artery showed basophilic material on histologic examination. In some cases the basophilic material was identified to be hydrogel on spectroscopic examination.

**Conclusions:** Hydrogel polymers are commonly used on interventional devices for improvement of deliverability. However, unexpected embolization of basophilic hydrogel was identified in all 13 cases. Hydrogel is not a benign material and its use in its current form on devices should be changed.

#### TCT-320

##### The Paclitaxel-coated balloon catheter presents a therapeutic alternative in select coronary indications – Results of an analysis of the raw data of 7 prospective studies

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**Background:** The paclitaxel-coated balloon catheter (DCB) based on the PACCOATH® technology has yielded angiographic and clinical results superior to drug-eluting stents in situations like bare-metal in-stent restenosis and a trend towards better outcome in small coronary vessels and side branches of coronary bifurcations. The sample size of each individual study, however, was relatively small.

**Methods:** To strengthen the evidence, the raw data of all 401 patients (63.3±10.5 years, 74.3% men) with 446 stenoses that were treated with SeQuent™ Please DCB or its predecessor in the PACCOATH ISR I/II, PEPACAD I, II, IV, V and INDICOR studies were analyzed. Main outcome parameters encompassed the 6-9-month angiographic and 1-year MACE data. The patients were categorized into the following groups: De-novo lesions in native vessels treated with DCBonly (82Px./106 stenoses), stenoses in native vessels treated with DCB and several types of bare-metal stents (BMS) (DCB+BMS: 202Px./223 stenoses) and bare-metal in-stent restenosis treated with DCB only (BMS-ISR: 117Px./117 stenoses).

**Results:** DCBonly compared to BMS-ISR did not show statistically different results for late lumen loss (LLL) (0.19±0.59mm vs 0.23±0.53mm), LLLIndex (0.15±0.31

vs 0.16±0.56), target lesion revascularization (TLR) (4/82 (4.9%) vs 6/117 (5.1%)), lesion related myocardial infarction major and target lesion thrombosis (both parameters in both groups 0), cardiac death (0/82 (0%) vs 1/117 (0.9%)), and major adverse cardiac events (MACE) (4/82 (4.9%) vs 6/117 (5.1%)). In DCB combined with BMS, TLR (16/202 (7.9%)), lesion related myocardial infarction (7/202 (3.5%)), target lesion related thrombosis (5/202 (2.5%)), and cardiac death (3/202 (1.5%)) were statistically not different compared to DCB only in de-novo lesions while in DCB+BMS the LLL (0.55±0.65mm) was significantly (p<0.001) greater as were LLLIndex (0.34±0.41, p<0.001) and MACE 25/202 (12.4%) (p=0.08). The 1-year MACE rates were independent from gender, and the cardiovascular risk factors smoking, hyperlipidemia, obesity, hypertension, and diabetes.

**Conclusions:** Angiographically, DCBonly was superior to its combination with bare metal stents whereas MACE data trended superior.

#### TCT-321

##### Impact of Diabetes Duration on Long-term Clinical Outcomes following Coronary Revascularization: A Cohort Study From China's Largest Cardiac Center

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**Background:** Prior studies implicated that a longer diabetes duration might raise coronary artery disease (CAD) risks and predict mortality. However, few studies have addressed its predictive value in patients undergoing coronary revascularization. Thus, we aimed to evaluate the impact of diabetes duration on long-term clinical outcomes after primary percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG).

**Methods:** A total of 820 diabetic patients treated for stable CAD were consecutively included in this retrospective single-center study. With a median follow-up of 3.5 years, patients' outcomes were assessed by major adverse cardiac events (MACEs) and the incidence of nonfatal stroke. MACEs were defined as the need for revascularization, non-fatal myocardial infarction, or cardiovascular death.

**Results:** At 3-year follow-up, MACE rate was significantly higher in PCI- compared with CABG-treated patients (13.30% vs. 7.02%, p=0.001). Multivariate Cox regression analysis revealed that a longer diabetes duration (≥ 5 years) was an independent predictor for the incidence of MACEs after PCI (HR=1.89, 95% CI 1.08-3.30, p=0.03), but not CABG (0.21-2.93, p=0.73). In addition, while CABG was superior to PCI in patients with diabetes duration ≥ 5 years (17.30% vs. 7.21%, p=0.003), no difference was observed in those < 5 years (9.36% vs. 6.86%, p=0.18). Notably, no differential treatment effect according to the category of SYNTAX score was found in patients with diabetes duration < or ≥ 5 years (p=0.79 and p=0.15, respectively). In contrast to MACEs, nonfatal stroke was more frequent in CABG- than PCI-treated patients (4.36% vs. 1.13% p=0.02), with no significant interaction between diabetes duration and treatment strategies on the outcome (p=0.58).

**Conclusions:** For stable CAD patients with a longer diabetes duration (≥ 5 years), CABG was superior to PCI in that it significantly reduced rates of MACEs, despite of a higher rate of nonfatal stroke. However, for those with a shorter diabetes duration (< 5 years), PCI was more preferable than CABG, which was independent of the SYNTAX stratification, as it markedly reduced rate of nonfatal stroke without significantly increasing the risk of MACEs.

#### TCT-322

##### Utility of the Residual SYNTAX Score In Patients With Diabetes Mellitus After Percutaneous Coronary Intervention

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**Background:** Both diabetes mellitus (DM) and incomplete revascularization (IR) are associated with a poor prognosis after percutaneous coronary intervention (PCI). We sought to quantify the extent and impact of IR following PCI using the residual SYNTAX score (rSS) in patients (pts) with and without DM.

**Methods:** The rSS was determined by an angiographic core laboratory in 2672 pts with moderate and high-risk acute coronary syndromes (ACS) undergoing PCI from the ACUTY trial. Pts were stratified by rSS tertiles. A rSS=0 was defined as complete revascularization (CR). One-year major adverse cardiovascular events (MACE) according to rSS were examined in DM and non-DM pts.

**Results:** Overall, 770 (28.8%) pts had DM and 1,902 did not. The mean rSS was 4.9±6.6 and 4.1±6.5 in DM and non-DM pts respectively (p=0.004). CR was achieved in 35.0% of DM and 42.5% of non-DM pts (p=0.004). As rSS increased, 1-year MACE was significantly higher in non-DM but not DM pts (Figure). DM pts also had higher incidence of death (3.0% vs.0.9%; p=0.01) and MACE at 1-year (22.5% vs. 14.1%; p=0.001) than non-DM pts, even when CR was achieved.